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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet

1

of

2

Complete if Known

Application Number

09/274.430

Filing Date

March 22, 1999

First Named Inventor

Michael Barrow

Group Art Unit

2814

Examiner Name

Attorney Docket Number

042390.P3495C2

U.S. PATENT DOCUMENTS

[illegible]

FOREIGN PATENT DOCUMENTS

[illegible]

**Examiner
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→ John B. Vazirani.

11/08/04

Paper No. 0804



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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Sheet 2 of 2

Application Number	09/274,430
Filing Date	March 22, 1999
First Named Inventor	Michael Barrow
Group Art Unit	2814
Examiner Name	
Attorney Docket Number	042390 P3495C2

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Page No. 0804

Page No. 0804

BEST AVAILABLE COPY

Substitute for Form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Complete if Known	
				Application Number	09/925,835
				Filing Date	August 7, 2001
				First Named Inventor:	Michael Barrow
				Art Unit	2841
				Examiner Name	Not Yet Assigned
Sheet	2	of	2	Attorney Docket Number	42.P3495C3

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
		Nikkei Microdevices. "Retention tape becomes BGA with holes." 1995, page 17.	

Examiner Signature		Date Considered	11/08/04
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Paper No. 0804

Substitute for Form 1449A/PTO (Mo (use as many sheets as necessary))	Attorney Docket No.: 042390P3495C2	Application Number: 09/274,430
Page 1 of 11	First Named Inventor: Michael Barrow	
	Filing Date: March 22, 1999	



U.S. PATENT DOCUMENTS

Exam. Initial*	Cite No.¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code² (If known)			
		4,887,148		Mu	12/12/1989	
		5,216,278		Lin et al.	6/1/1993	
		5,285,352		Pastore et al.	2/8/1994	
		5,355,283		Marrs et al.	10/11/1994	
		5,367,435		Andros et al.	11/22/1994	
		5,450,283		Lin et al.	9/12/1995	
		5,490,324		Newman	2/13/1996	
		5,506,756		Haley	4/9/1996	
		5,650,660		Barrow	7/22/1997	
		5,686,699		Chu et al.	11/11/1997	
		4,688,170		Waite et al.	8/18/1987	
		5,367,435		Andros et al.	11/22/1994	

FOREIGN PATENT DOCUMENTS

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		Office³	Number⁴	Kind Code⁵ (If known)				

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Paper No. 17
⇒ Paper No. 0804

Substitute for Form 1449A/PTO (Modification) (use as many sheets as necessary)		Attorney Docket No. 042390P3495C2	Application Number: 09/274,430
Page 2 of 11		First Named Inventor: Michael Barrow	Filing Date: March 22, 1999
OTHER ART - NO PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume, issue number(s), publisher, city and/or country where published	Translation ²
JBL		1991 Proceedings, 41 st Electronic Components & Technology Conference, May 11-16, 1991, Atlanta, Georgia	
		Bruce Freyman et al., "Surface Mount Process Technology for Ball Grid Array Packaging, Amkor Electronics Inc., Tempe, Arizona, pgs. 81-85	
		Bruce Freyman et al., "Surface Mount Process Technology for Ball Grid Array Packaging"; JUNICHO SHIMIZU, "Plastic Ball Grid Array Coplanarity" Citizens Watch Co, Tokyo Japan, Surface Mount International Conference & Exposition, San Jose, California, Aug 29-Sept 2, 1993, pgs. 81-91	
		Dave Hattas, "BGAs Face Production Testing", Advanced Packaging, Summer 1993, pgs. 44-46	
		Electronic Packaging & Production: Concurrent Engineering for Packaging, Fabrication & Assembly, Articles, March 1993, Vol. 3, No. 33	
		Julie Houghten, "Takes on QFPs" Advanced Packaging, Winter 1993, pgs 38-39	
		Randy Johnson et al., "Ball Grid Array Technology: A Feasibility Study of Ball Grid Array Packaging", Nepcon Conference, Proceeding of the Technical Program, June 14-17, 1993 Boston Massachusetts, pgs 411-430	
		Electronic Packaging & Production: Concurrent Engineering for Packaging, Fabrication & Assembly, Articles, May 1992	
		Andrew Mawer et al., "Calculation of Thermal Cycling and Applications Fatigue Life of the Plastic Ball Grid Array (BGA) Package", Proceeding of the 1993 International Electronics Packaging Conference, September 12-15, 1993 San Diego, California, vol. 2, pgs. 718-730	
		Amkor BGA Packaging, "Taking the World by Storm", Amkor Electronics, Chandler, AZ	
		Leo Anderson et al., "Solder Attachment Analysis of Plastic BGA Modules", Surface Mount International, San Jose, CA, August 1994, pgs. 189-194	
✓		Dr. Abbas I. Attarwala et al., "Failure Mode Analysis of a 540 Pin Plastic Ball Grid Array", Surface Mount International, San Jose, CA, August 1994, pgs. 252-257	

Examiner Signature <i>John B. Vigoda</i>	Date Considered 09/09/02
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Paper No. ~~0804~~ 0804

Substitute for Form 1449A/PTO (Mod.) (use as many sheets as necessary)	Attorney Docket No. 042390P3495C2	Application Number: 09/274,430
Page 3 of 11	First Named Inventor: Michael Barrow	Filing Date: March 22, 1999

OTHER ART - NO PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	Translation ²
<i>JB</i>		Surface Mount International Conference & Exposition: Proceedings of The Technical Program, San Jose, CA, Aug 28-Sept 1, 1994	
		C.E. Bauer, "Partitioning and Die Selection Strategies for Cost Effective MCM Designs"; W.E. BERNIER et al., "BGA vs QFP: A Summary of Tradeoffs for Selection of High I/O Components"; A.J. MAWER et al., "Plastic Ball Grid Array Solder Joint Reliability Considerations"; Dr. W.C. Mak et al., "Increased SOIC Power Distribution Capability Through Board Design and Finite Element Modeling", Journal of Surface Mount Technology, October 1994	
		W.E. Bernier et al., "BGA vs QFP: A Summary of Tradeoffs for Selection of High I/O Components", Surface Mount International Conference & Exposition, Proceedings of The Technical Program, San Jose, CA, Aug 30-Sept 1, 1994 pgs. 181-185	
		Marie Cole et al., "Ball Grid Array Packaging", Surface Mount International Conference & Exposition, Proceedings of The Technical Program, San Jose, CA, Aug 30-Sept 1, 1994 pgs. 147-153	
		Electronic Packaging & Production, Articles, vol. 34, No. 12, December 1994	
		Advanced Packaging, "BGAs for MCMs: An Enabling Technology Emerges", Articles, September/October 1994	
		Suzanne Fauser et al., "High Pin Count PBGA Assembly: Solder Defect Failure Modes and Root Cause Analysis", pgs. 169-174	
		InterConnection Technology Articles, September 1993	
		Curtis Hart, "Vias in Pads for Coarse and Fine Pitch Ball Grid Arrays", Surface Mount International Conference & Exposition, Proceedings of The Technical Program, San Jose, CA, Aug 30-Sept 1, 1994	
		L.C. Matthew et al. "Reliability- Area Array Packaging"; Roland Heitmann, "Assembly-A Direct Attach Evolution", Advanced Packing, Microwave RF Packaging, Articles, July/August 1994,	
		Charles L.Hutchins "Understanding Grid Array Packages", Surface Mount Technology Magazine, November 1994, pgs 12-13	
<i>✓</i>		Jennie S. Hwang, "Reliability of BGA Solder Interconnections" Surface Mount Technology Magazine, September 1994, pgs 14-15	

Examiner Signature <i>John F. Vignata</i>	Date Considered 09/09/02
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Page No 170804

Substitute for Form 1449A/PTO (Modifying) (use as many sheets as necessary)		Attorney Docket No. 042390P3495C2	Application Number: 09/274,430
Page 4 of 11		First Named Inventor: Michael Barrow	Filing Date: March 22, 1999
OTHER ART - NO PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume, issue number(s), publisher, city and/or country where published	Translation ²
JAV		J. Lau et al., "No Clean Mass Reflow of Large Plastic Ball Grid Array Packages" Printed Circuit Interconnection Federation, Circuit World, Vol. 20, No. 3, March 1994, pgs 15-22	
		John H. Lau et al. "No Clean Mass Reflow of Large Plastic Ball Grid Array Packages", Journal of Surface Mount Technology, pgs 3-14, July 1994	
		Charles E. Bauer, Ph.D. et al., "Partitioning and Die Selection for Cost Effective MCM Designs", pgs 4-9; W.E. Bernier et al., "BGA vs QFP: A Summary of Tradeoffs for Selection of High I/O Components", pgs 10-15; Andrew J. Mawer et al. "Plastic Ball Grid Array Solder Joint Reliability Considerations", pgs 16-32; Dr. W.C. Mak et al. "Increased SOIC Power Dissipation Capability Through Board Design and Finite Element Modeling", pgs 33-42, Journal of Surface Mount Technology, October 1994	
		Michael Dobers et al., "Design-Low Cost MCMs", pgs 28-32; "Ken Gilleo, "Materials-Electronic Polymers, pgs 37-42"; Robert C. Marrs et al, "Market Trends-BGAs for MCMs, pgs 48-52, Advanced Packaging Magazine, BGAs for MCMs, September/October 1994	
		L. C. Mathew et al. "Reliability-Area Array PackingZ", pgs 91-94; "Assembly-A Direct Attach Evolution", pgs 95-99, Advanced Packing Magazine, Microwave RF Packaging, July/August 1994	
		Andrew J. Mawer et al, "Plastic Ball Grip Array Solder Joint Reliability Considerations", pgs 16-32, Journal of Surface Mount Technology, October 1994	
		Tony Mazzullo, "How IC Packages Affect PCB Design", Surface Mount Technology Magazine, Nepcon West '95, February 1995, pgs 114-116	
		Joel Mearig, "An Overview of Manufacturing BGA Technology", Proceeding of the Technical Program, Nepcon West '95 Conference, Feburary/March 1995, Anaheim, CA, pgs 295-299	
		Atila Mertol, "Application of the Taguchi Method on the Robust Design of Molded 225 Plastic Ball Grid Array Packages", IEEE Transactions on Components, Packaging, and Manufacturing Technology, Part B: Vol. 18, No. 4, November 1995, pgs 734-743	
		Shailesh Mulgaonker et al., "An Assessment of the Thermal Performance of the PBGA Family", IEEE Transactions on Components, Packaging, and Manufacturing Technology, Part A. Vol. 18. No 4., December 1995, pgs 739-748	
	Electronic Design Magazine, April 17, 1995, Various Articles.		
		Reader Service: Hewlett Packard, Actel, Mini-Circuits; Electronic Design, April 1995, Vol. 43, No. 8; Nikkei Microdevices Magazine, Various Articles	

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Page No. 1X0804



Attorney Docket No.:
042390P3495C2

Application Number:
09/274,430

First Named Inventor:
Michael Barrow

Filing Date:
March 22, 1999

OTHER ART - NO PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	Translation
BV		Nikkei Microdevices, March 1995, Various Articles	
		John H. Lau, "Ball Grid Array Technology" Publication, pgs 1-636	
		Electronic Packaging & Production Literature Review, February 1995	
		LSI Logic Package Selector Guide, 1994-1995	
		Robert Marrs et al., "Recent Technology Breakthroughs Achieved with the New Super BGA Package", Proceeding of the Technical Conference, 1995 International Electronics Packaging Conference, San Diego, CA September 1995, pgs 565-576	
		Jonathan L. Houghten, "Plastic Ball-Grid Arrays Continue to Evolve", Electronic Design Magazine, February 1995, 141-146	
		Wayne Huang et al. "Electrical Characterization of PBGA for Communication Applications by Simulation and Measurement" Proceeding of the Technical Program, Nepcon West '95, Conference February/March 1995, Anaheim, CA, pgs 307	
		Greg Reed, "NEPCON Highlights Thriving Industry"; Jenny S. Hwang, "A Hybrid of QFP and BGA Architectures", Surface Mount Technology Magazine, February 1995	
		Microprocessor Report, November 1995, Vol. 9, No. 15, Michael Slater "Intel Boosts Pentium Pro to 200 MHz", "AMD Buys NexGen to Boost x86 Position"; Linly Gwennap "Integrated PA-7300LC Powers HP Midrange", "UltraSparc to Pick Up Speed in 1996"; Jim Turley "StrongArm Punches Up ARM Performance"; Brian Case "First Trimedia Chip Boards PCI Bus"; and Mike Johnson "RISC-like Design Fares Well for x86 CPUs	
		Linly Gwennap "Intel's P6 Bus Designed for Multiprocessing" Microprocessor Report, Vol. 9, No. 7, May 1995, pgs 2-6	
		IPC National Ball Grid Array Symposium, Supplement to the Proceedings, March 1995, Dallas TX	
		T. Kawahara et al. "Ball Grid Array Type Package by Using of New Encapsulation Method", Proceedings of the 1995 International Electronics Packaging Conference, San Diego, CA, September 1995	

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Paper No. 120804

Substitute for Form 1449A/PTO (Modi. (use as many sheets as necessary))		Attorney Docket No. 042390P3495C2	Application Number: 09/274,430
Page 6 of 1		First Named Inventor: Michael Barrow	
		Filing Date: March 22, 1999	
OTHER ART—NO PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	Translation
JRV		John U. Knickerbocker et al., "Materials: Ceramic BGA" Advanced Packaging Magazine, January/February 1995, pgs 20-25	
		Gary Kromann et al., "A Hi-Density C4/CBGA Interconnect Technology for a CMOS Microprocessor", Proceeding of the Technical Program, Nepcon West '95 Conference, February/March 1995, Anaheim, CA, pgs 1523-1529	
		Balwant S. Lall et al., "Methodology for Thermal Evaluation of Multichip Modules" IEEE Transactions on Components, Packaging, and Manufacturing Technology Part A, December 1995, Vol. 18, No. 4, pgs 758-764	
		Steve Rooks, "X-Ray Inspection of Flip Chip Attach Using Digital Tomosynthesis" Surface Mount International Conference & Exposition, Proceedings of the Technical Program, San Jose, CA, August/September 1994, pgs 195-202	
		Paul Mescher et al., "A Practical Comparison of Surface Mount Assembly for Ball Grid Array Components" Surface Mount International, Proceedings of the Technical Program, San Jose, CA, August/September 1994, pgs 164-168	
		Gil Olachea, "Managing Heat: A Focus On Power IC Packaging" Electronic Packaging & Production, November 1994, pgs 26-28	
		C. Ramirez et al., "Fatigue Life Comparison of the Perimeter and Full Plastic Ball Grid Array, pgs 258-266	
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		Richard E. Sigliano, "Market Trends: Using BGA Packages", Advanced Packaging, March/April 1994, pgs 36-40	
		David B. Walshak, Jr., "Thermal Modeling of a Multichip BGA Package" Proceedings of the Technical Program, Nepcon West Conference, February/March 1994, Anaheim CA, pgs 1266-1276	
	David Walshak et al., "BGA Technology: Current and Future Direction for Plastic, Ceramic and Tape BGA's, MCC, Austin TX, pp 157-163		
	J. S. Huang, "Reliability of BGA Solder Interconnections" Electronic Packaging & Production, Surface Mount, Vol. 8, No. 9, September 1994, pp 14-15		


Examiner Signature	<i>John B. Vignath</i>	Date Considered	09/09/02
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		Michael A. Zimerman "High Performance BGA Molded Packages for MCM Application" Surface Mount International Conference & Exposition, Proceedings of the Technical Program, San Jose, CA, August 1994, pp 175-180	
		Gilbert Zweig, "BGAs: Inspect the Process, Not the Product", Electronic Packaging & Production Magazine, The Technology of Surface Mount, August 1994	
		Advanced Packaging, March/April 1995	
		Seung-Ho Ahn et al., "Popcorn Phenomena in a Ball Grid Array Package" IEEE Transactions on Components, Packaging, and Manufacturing Technology-Part B: Advanced Packaging, Vol. 18, No. 3, August 1995, pp 491-496	
		Rajen Chanchani et al., "Reliability: Mini BGA", Advanced Packaging, May/June 1995, pp 34-37	
		Juan Burgos et al., "Achieving Accurate Thermal Characterization Using a CFD Code-A Case Study of Plastic Packages", IEEE Transactions on Components, Packaging, and Manufacturing Technology-Part A, Vol. 18, No. 4, December 1995, pp 732-738	
		"Joint Standard on BGA" Advanced Packaging, May/June 1995, pp 16	
		David Maliniak, "The Maturing of the BGA", Electronic Design, April 1995, pp 20	
		Electronic Packaging & Production, March 1995	
		J. Ewanich et al., "Development of a Tab (TCP) Ball Grid Array Package", Proceedings of the Technical Conference, 1995 International Electronics Packaging Conference, San Diego, CA, September 1995, pp 588-594	
		Mark Ferguson, "Ensuring High-Yield BGA Assembly" Circuits Assembly, February 1995, pp 54-56	
	✓		Atila Mertol, "Application of the Taguchi Method on Robust Design of Molded 225 Plastic Ball Grid Array Packages", IEEE Transactions on Components, Packaging, and Manufacturing Technology-Part B: Advanced Packaging, Vol. 18, No. 4, November 1995, pp 734-743

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JW		Bruce Freyman et al., "The Move to Perimeter Plastic BGA's" Surface Mount International, Proceedings of the Technical Program, San Jose, CA, August 1995 pp. 373-382.	
		Bruce M. Guenin et al., "Analysis of a Thermally Enhanced Ball Grid Array Package", IEEE Transactions on Components, Packaging, and Manufacturing Technology-Part A, Vol. 18, No. 4, December 1995, pp 749-757	
		Curtis Hart, "Vias in Pads" Circuits Assembly, February 1995	
		Gary B. Kromann et al., "Motorola's Power PC 603 and PowerPC 604 RISC Microprocessor: The C4/Ceramic Ball-Grid Array Interconnect Technology", IEEE, 45th Electronic Components & Technology Conference 1995, pp 1-27	
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Examiner Signature	<i>John B. - [Signature]</i>	Date Considered	09/09/02
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11/08/04
Paper No. 12 0804

Substitute for Form 1449A/PTO (Mod... (use as many sheets as necessary))		Attorney Docket No. 042390P3495C2	Application Number: 09/274,430
Page 9 of 11		First Named Inventor: Michael Barrow	Filing Date: March 22, 1999
OTHER ART - NO PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume, issue number(s), publisher, city and/or country where published	Translation ²
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[Signature]		Philip E. Rogren, "MCM-L Built on Ball Grid Array Formats", Surface Mount International, Proceedings of the Technical Program, San Jose, Ca, August/September 1994	
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		Andrew Mawerand et al., "Reliable BGAs Take on Extra Routes" Electronic Engineering Times 98, Interconnects & Packaging, Issue 816, September 194	
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Application Number

09/274,430

Filing Date

March 22, 1999

First Named Inventor:

Michel Barrow

Group Art Unit

2841

Examiner Name _____

~~David A. Foster~~

Attorney Docket Number

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